BOTANICA

PLANTAE COLOMBIANAE, VI

Investigationes specierum Saurauiae: locus secundus.

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The following notes on new or otherwise interesting species of *Saurauia* are presented as a result of preliminary studies towards a revision of the American species of this genus.

Saurauia Cuatrecasana R. E. Schultes spec. nov.

Arbor usque ad sex m. alta. Ramuli scabro-pulverulenti. Folia amplia, longe petiolata, papyracea, ovata, apice obtusa, basi sensim attenuato-cuneata, margine minute serrulata, in statu adulta 20-30 cm. longa, 10-13.5 cm. lata, cum plus minusve 25 ad 30 nervis lateralibus; supra atroviridia, scabridiuscula cum pilorum vestigiis granuloideis praecipue in nervis medianis; infra cinereo-viridia, in lamina atque nervis lateralibus minute et densissime ferrugineo stellato- pilosiuscula atque inter pilos cinereo-pulverulento-pubescentia. Petioli robusti, scabro-pulverulenti, 4.5-6 cm. longi. Inflorescentiae multiflorae, erectae, pedunculis scabridiusculis. Flores parvi, 1 cm. in diametro quod maximum est. Sepala quinque, inaequalia; tria exteriora subcarnosa, ovato-rotundata, apice rotundata, margine integra vel minutissime ciliata, intus glabra, extus grossiuscule tuberculato-granulosa, inter granulos maxime minutissime pulverulento-pilosiuscula, plerumque 4 mm. longa, 3-3.5 mm. lata; duo interiora majora, membranacea, petaloidea, rotundata, margine minute ciliata, extus cinereo-pulverulenta sed basi cum carinae medianae tuberculato-granulosae vestigio, 4 mm. longa, 4 mm. lata. Petala quinque, alba, membranacea, rotundata, margine irregulariter undulata vel subintegra, utrinque glabra, plerumque 6 mm. longa, 4-4.5 mm. lata. Stamina duodeviginti ad viginti; filamenta et antherae flavae, 2 mm. longae, basi dense rufo-aureo-barbata. Ovarium globosum, fuscum, glabrum, 2 mm. in diametro. Stylus quinquefidus, subcarnosus, brevissimus. Fructus adhuc ignotus.

COLOMBIA: Departamento de Caldas—"Cordillera Central, Manizales, Gallinazo, 2720 m. Arbol de 6 m.; corola blanca; anteras amarillas", 4 mayo, 1940, *J. Cuatrecasas 9209* (TYPE in Herb. Nac. Colomb.).

This species is apparently very closely related to *Saurauia chiliantha* R. E. Schultes of the same general region. While there is a remarkable correlation in most of the important characters, these two species may be distinguished easily by the variation in size and shape of the leaves. *Saurauia Cuatrecasana* has leaves 20-30 by 10-13.5 cm., and *S. chiliantha* has leaves which measure 11-18 by 3.5-5.5 cm. The petals of the former are larger than those of the latter. In *Saurauia chiliantha,* the upper surface of the leaf is almost shining and without hairiness, and the exterior of the outer sepals is glabrous or slightly pulverulent; whereas in *S. Cuatrecasana,* the upper leaf surface is rough to the touch, covered with pustulate or granulate vestiges of hirsute hairs, and the exterior of the outer sepals is likewise coarsely tubercular and granulate. There are also other differences in the hairiness of the floral and vegetative parts. Is is to be noted, however, that both have the same number of stamens, an indication of a close relationship.

I am honoured to dedicate this species to Dr. José Cuatrecasas whose extensive and systematic explorations in Colombia have greatly enriched our knowledge of the floristic composition of this critical phytogeographic area of South America.

Saurauia floccifera Triana et Planchon in Ann, Sci. Nat. Sér. IV, XVIII (1862) 267; Prodr. Fl. Novo-Granat. (1862) 264, descr. ampl. R. E. Schultes.

COLOMBIA: Intendencia del Meta, forest near Villavicencio, alt. ± 600 m. "Small tree, not over 10 m. high. Showy white inflorescence". January 20, 1939, *Oscar Haught 2554* (Herb. Nac. Colomb.).

ORIGINAL DESCRIPTION: "Arbor ramulorum apicibus inflorescentiis calycibus foliisque novellis subtus tomento brevi floccoso ferrugineo indutis, foliis petiolatis oblongis breviter acuminatis acutis argute serrulatis utrinque pilis brevibus ramosis flocciformibus v. po-

tius acervulis pilorum albidis conspersis caeterum glabris, thyrsis axillaribus folio brevioribus pedunculatis trichotome divisis, bracteis parvis triangulari-linearibus supremis ovatis, floribus diametro circiter 14 mm. saepius subsessilibus v. breviter pedicellatis, laciniis calycinis oblongis calycem superantibus, pilis inter stamina albis, ovario ovato, glabro".

Arbor parva usque ad 10 m. alta, ut videtur satis frondosa. Ramuli sordide tomentosi cum pilis ferrugineis vel aureo-fuscis, cortice atrofusco sed in ramulis novellis rufo-fusco. Folia ampla, membranacea, ovato-oblonga, apice acuminata, basi rotundata, longe petiolata (petioli usque ad 4.5 cm. longi, 3 mm. in diametro), margine regulariter atque conspicue serrata, dentium apicibus 4-5 mm. distantibus, cum plus minusve 28 venis prominentibus; supra atrovividia, nitida conspectu atque tactu glabra sed cum pilis debilibus, albis, mollibus, caducis maxime remotissime armata (probabiliter saepe glabra), nervis aureo-fuscis, subglabris vel glabris; infra viridia pallida, glabra, nervis rufo-fuscis, hispidulis; foliis novellis infra et supra densissime et regulariter stellato-pilosis et in nervis stellato-pilosis atque hispidulis. Inflorescentiae multiflorae, foliis breviores, cum pedunculo usque ad 16 cm. longae, pulverulentae. Flores parvi, conspicui, in diametro 14 mm. Sepala quinque, aequalia, papyraceo-membranacea, colore fusca, elliptica, apice rotundata, margine integra, extus dense et minute pulverulenta cum pilis stellatis et hispidula, intus molliter pulverulenta, 5 mm. longa, 2.5-3 mm. lata. Petala quinque, membranacea, alba, glabra, ovato-oblonga, apice late rotundata, margine integra sed saepe prope apicem minutissime undulata, 7 mm. longa, 4 mm. lata. Stamina plus minusve viginti-octo, 4.5 mm. longa, in pilorum alborun barba densa interposita. Staminum filamenta gracilis, 2.5 mm. longa. Antherae flavae, 2 mm. longae. Ovarium globosum, glabrum, rufum, potius striatum, 2 mm. in diametro. Styli quinque, filiformes, 5 mm. longi, apice in stigmata potius dilatati. Fructus adhuc ignotus.

The collection *Haught 2554* is a very striking match for the type of *Saurauia floccifera* which is in the Delessert Herbarium and an excellent photograph of which is in the Herbario Nacional Colombiano. All characters exhibit an apparent constancy, although *Haught 2554* comes from an altitude of only about 600 meters, whilst the type (from Quetame) was collected at 2000 meters.

Saurauia intonsa R. E. Schultes spec. nov.

Frutex usque ad 3 m. altus. Rami atque ramuli dense et grossiuscule strigillosi; ramulorum cortex cinerascenti-fulvus. Folia amplia, petiolata, firme papyraceo-coriacea, perspicue remiformea (obovata, apice breviter acuminata, basi sensim attenuata), margine serrulata, cum plus minusve septendecim venis lateralibus; supra atroviridia, scabra, ut videtur sordida, in lamina cum pilis hirsutis solis atque in nervis cum pilis strigillosis dense et grossiuscule obtexta; infra fusco-viridia, dense et submolliter pilosa cum pilis longis, debilibus, solis, colore flavo-aureis (qui in nervis collecti sunt); in statu adulta 20-30 cm. longa, 11-16 cm. lata. Petioli robusti, 1-2 cm. longi, usque ad 4 mm. in diametro, dense et grossiuscule scabro-strigillosi. Inflorescentiae pauciflorae, usualiter usque ad plus minusve quindecimflorae, foliis breviores, erectae, plerumque 10-19 cm. longae, pedunculis robustis maxime densissime et grossiuscule strigosis cum pilis rufo-fuscis. Flores magni et conspicui, pedicellis, maxime densissime strigosis, usque ad 4 mm. longis. Bracteae flores subtendentes minutae, subulato-lineares, sicco-papyraceae, usualiter glabrae, 3 mm. longae, 0.5 mm. latae; bracteae pedicellos subtendentes majorae, triangulari-lineares, sicco-papyraceae, 6 mm. longae, basi usque ad 2 mm. latae, intus glabrae, extus strigosae. Sepala quinque, inaequalia; tria exteriora subcarnosa, ovato-elliptica, apice subacuta, margine integra, intus pulverulenta, extus maxime densissime echino-strigosa cum pilis rufo-aureis (qui saepe aliquid hamulati sunt), 6-7 mm. longa, 4-5 mm. lata; duo interiora majora, membranacea, petaloidea, rotundata, margine integra, plerumque 8-9 mm. longa, 7 mm. lata, intus glabra vel minutissime pulverulento-papillosa, extus cum spinularum echinatarum carina mediana armata. Petala quinque, alba, membranacea, rotundata, margine integra, glabra, 9-10 mm. longa, 8-9 mm. lata. Stamina triginta ad quattuor-triginta; filamenta gracilia, usque ad 4 mm. longa, cum antheris flavis, 3.5 mm. longis; basi laeviter barbata. Ovarium elongato-ovoideum, subnigrum, glabrum, usque ad 2 mm. in diametro. Stylus brevis, subcarnosus, quinquefidus, profunde divisus. Fructus adhuc ignotus.

COLOMBIA: Departamento del Huila: — "Cordillera Oriental, below Finca La Estrella on Quebrada Cucaracha, one of the headwaters of Quebrada Damas, 12 km. south-east of Garzón, 1500 m. Thickets near stream; shrub 3 m. tall; inflorescence reddish-brown; flowers white". February 1943, *F. R. Fosberg 19914* (U.S. Nat. Herb.; Herb. Gray; Herb. Nac. Colomb.).

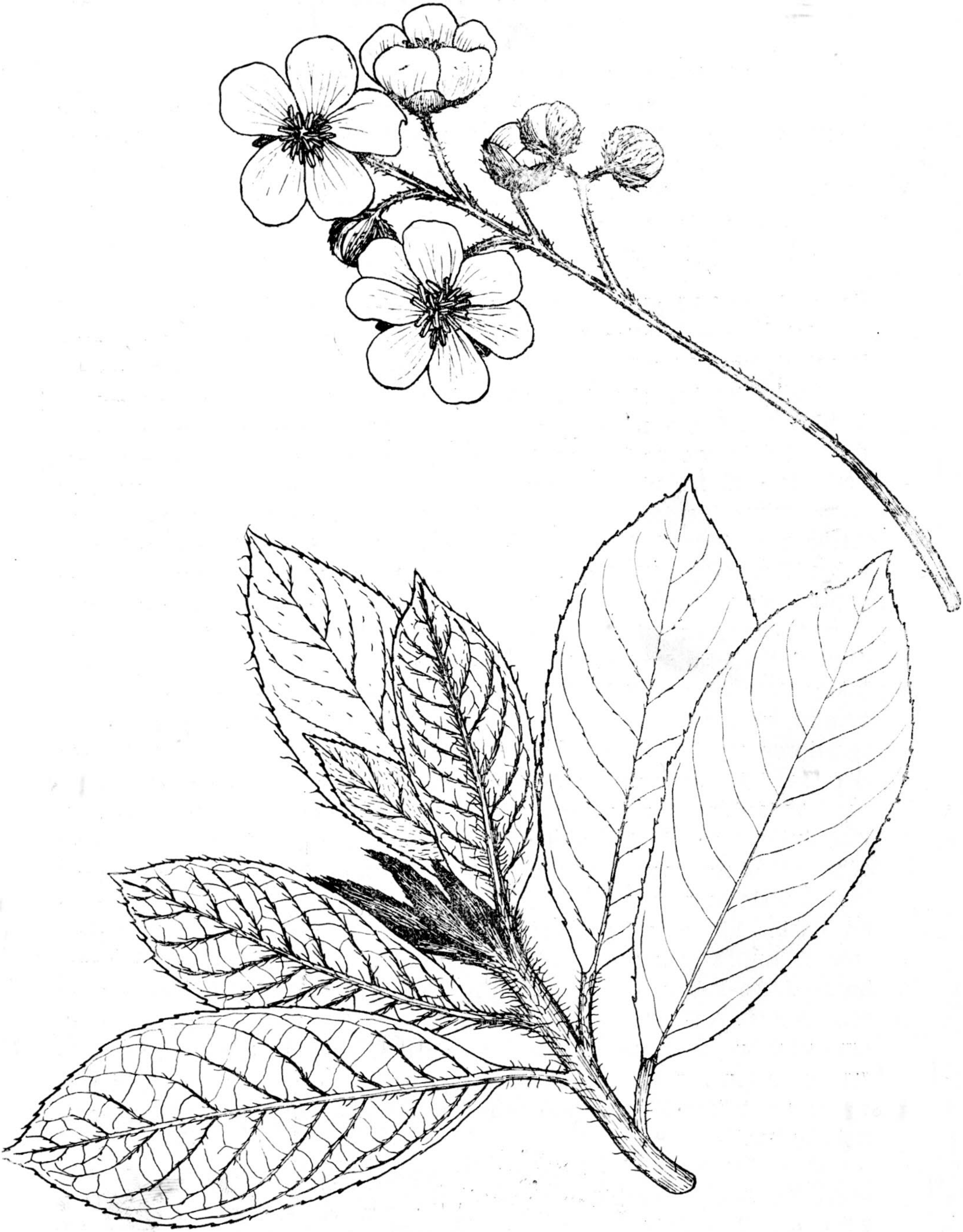
Saurauia intonsa is one of the most outstandingly distinct species known from Colombia because of its curious remiform leaves and its very shaggy pilosity. It appears to be allied to *Saurauia lanceolata* Ruiz et Pav. of Peru but, in addition to floral differences, the unusual leaf-shape of *S. intonsa* serves to distinguish the two at once.

The specific epithet "intonsa" refers to the coarse character of the pilosity of this species.

Saurauia omichlophila R. E. Schultes spec. nov.

Arbor parva, aliquid stricta (non patula), usque ad 5 m. alta. Rami strigoso-hirsuti, fulvo-rubenti cum cortice striato. Folia parva, petiolata; lamina obovata, apice acuminata, basi cuneata vel subrotundata, coriacea, margine serrulata sed sine setis, utrinque atroviridi, 8-10 (plerumque 10) cm. longa, 3-4 cm. lata (rarenter angustiora), venis lateralibus plus minusve decim vel duodecim, supra nitida et remotissime hispida albis cum pilis sparse in lamina sed densius in nervo praecipuo, infra glabra nervis omnibus strigoso-setaceis fulvo-rubentibus cum pilis longis; petioli 1-1.7 cm. longi, hispidi. Inflorescentiae (cum pedunculo) graciles, foliis subaequales, pauciflorae. Pedunculi graciles, hispiduli, plus minusve 6 cm. longi. Bracteae pedunculos subtendentes hispidulae, lineares, 12 mm. longae, 1.8 mm. latae; bracteae pedicellos subtendentes similes sed minores. Floris gemina globosa, 4-6 mm. in diametro. Flores saepissime duodecim vel pauciores, 2.4-3.2 cm. in diametro, fragrantissimi. Sepala quinque vel sex (rarenter septem); sepala exteriora tria, ovata, acuta, strigulosa vel hispidulosa, 6 mm. longa, 4 mm. lata, fulvo-aurea, inflexis cum marginibus; sepala interiora duo vel tria, suborbicularia, sparse hispidulosa extus cum setarum carina mediana, 8 mm. longa, 7 mm. lata. Petala quinque vel sex, subaequalia, membranacea, glabra, usque ad basim libera, subquadrangulata, alba, 13 mm. longa, 9-10 mm. lata. Stamina versatilia, circiter viginti-quattuor, basi dense barbata; barba fulvo-rubens ovarium partim tegens. Staminum filamenta 1.8-2 mm. longa. Antherae 1.9 mm. longae. Ovarium subglobosum, crassis cum stylibus quinque vel sexo coronatum. Fructus ignotus sed esculentus dicitur. Arbor ab regionis agrestibus "moquillo del páramo" atque ab tribus Kamsá indigenis in civitate Sibundoy "dji-nu-sse" nominatur.

COLOMBIA: Comisaría del Putumayo, Páramo de San Antonio, entre La Laguna de La Cocha y el Valle de Sibundoy, alt. ca. 3,000-3,200 m. "Moquillo del páramo". Kamsá Indian name in Sibundoy



Saurauia omichlophila R. E. Schultes
Natural size.

Drawn by Inés de Zulueta

"dji-nu-sse". Fruit edible. Small tree about 15 feet tall. Very fragrant. Flowers white, very conspicuous". 13 febrero, 1942, *Richard Evans Schultes 3236* (Type in Econ. Herb. Oakes Ames; duplicate types in Herb. Gray; Herb. Nac. Colomb.).

Comisaría del Putumayo, Sibundoy, alt. 2224 m., V-16-1935, *H. García-Barriga 4563* (U. S. Nat. Herb.; Herb. Nac. Colomb.).

Comisaría del Putumayo, alta cuenca del Río Putumayo, bosque paramero bajando del páramo de San Antonio del Bordoncillo hacia Santiago de Sibundoy, 2800 m. alt. "Frutex. Pedunculos, ramos y cáliz cárdenos. Pétalos blancos; anteras amarillas", 4 enero, 1941, *J. Cuatrecasas 11790* (Topotype in U.S. Nat. Herb.; Herb. Nac. Colomb.).

S. aequatoriensis Sprague of northern Ecuador is apparently the closest ally of *S. omichlophila*. The leaves of *S. omichlophila* are much smaller, but the flowers are considerably larger and much more conspicuous. In addition, the leaves of the new species are very smooth beneath and have fewer nerves. *Saurauia omichlophila* has a few-flowered inflorescence, whereas that of *S. aequatoriensis* has many flowers. There are notable differences, also, in the floral structure of the two species, the most important of which seems to be the number of stamens: *Saurauia aequatoriensis* has thirty-five, *S. omichlophila* only twenty-four.

Saurauia omichlophila exhibits a peculiarity which is very frequently seen in *Saurauia*: an irregular repetition of floral parts. In the type of this species, an hexamerous condition predominates, but there are also flowers with five and seven parts.

The specific epithet "omichlophila" means "mist lover" and refers to the fact that *S. omichlophila* is found on the misty páramos at high elevations. The altitude given in the data accompanying *García-Barriga 4563* —2224 meters— is probably erroneous, as that is the altitude of the Valle de Sibundoy. Careful search in the Valle de Sibundoy convinced me that this species is not found in the valley itself. The plant was seen only on the high moor or páramo of San Antonio above the Valle de Sibundoy, and it would not be surprising if *Saurauia omichlophila* were a very restricted endemic of this high ridge.

Saurauia pulchra Sprague in Trans. & Proc. Bot. Soc. Edinburgh 21 (1905) 426; descr. ampl. R. E. Schultes.

COLOMBIA: Departamento del Huila, San Agustín and vicinity. Alt. 1600 m., "Small tree up to 20 ft. tall. Bark brownish black, rough.

Flowers white and fragrant. Leaves glabrous and stiff. Fruit edible. Common name: "Moquillo". January, 1943, *R. E. Schultes et M. Villarreal 5330* (Herb. Nac. Colomb.). Amplified description based upon this collection.

ORIGINAL DESCRIPTION: "*Saurauja pulchra*: ramuli crassi superne nigri ut petioli tuberculati; lamina obovato-oblonga, apice rotundata vel cuspidata, 12-19 cm. longa, margine tenuiter dentato-serrulata, venis lateralibus utrinque 20-22, tertiariis irregularibus; pagina superior nitidula glabra, inferior minute pulverulenta; paniculae crassae, pauciflorae; flores 2.5 cm. diam.; sepala extra pulverulenta; stamina circa 42; styli minimi. San Agustín, Tolima, Nº 323".

Arbor parva, aliquid debilis, pulcherrima, usque ad septem vel probabiliter novem m. alta, in silvis atque campis crescens. Truncus cylindricus, saepe obtortus, usque ad 1 pes in diametro, nigro cum cortice striato obtectus. Rami glabri, fusco striatoque cum cortice. Ramuli glabri vel glabrescentes, prope apicem grossiuscule pulverulenti, 6. mm. in diametro. Folia adulta magna, firmissime coriacea, petiolata, obovato-oblonga, apice brevissime acuminata, basi late cuneata, margine laeviter serrulato-undulato, cum mucronibus hebetibus minutisque et aliquid lignosis armata, in statu adulta usualiter 12-26 cm. longa, 7-10 cm. lata (sed aliquando evidenter praeter morem usque ad 30 cm. longa, 14 cm. lata), cum duodeviginti ad viginti duo nervis lateralibus utrinque, tertiariis irregularibus et obscuris; supra atroviridia, valde, nitida, nervis fusco-rufis, glaberrimis et viva fragilibus; infra fusco-viridia, non nitida, glabra vel in statu adulta cum pilorum alborum, minutorum, solorumque vestigiis inconspicue et maxime remotissime armata (folia novellissima utrinque dense et regulariter stellato-pilosis in laminis item quoque in venis). Petioli robusti, plerumque 1.5 cm. longi, subglabri. Inflorescentiae pauciflorae, foliis breviores, cum pedunculo 15 cm. longae. Pedunculi subglabri, praeter modum prope apicem pulverulenti, robustiores, basi 4 mm. atque apice 1-2 mm. in diametro. Bracteae siccae, minutae, triangulari-lineares, pulverulenti vel subglabri, usque ad 2 mm. longi. Flores pulcherrimi, fragranti, plus minusve 2-2.5 (plerumque 2.5) cm. in diametro. Pedicelli robustiores, pulverulenti, 3-10 mm. longi, 1.5 mm. in diametro. Sepala quinque, inaequalia; duo exteriora rotundato-ovata, apice obtusa vel rotundata, margine integra vel irregulariter et obscure subintegra, extus sordide pulverulenta colore ferruginea, intus minutissime pulverulenta, 8 mm. longa, 6 mm. lata; tria interiora similia sed majora, 10 mm. longa, 8 mm. lata. Petala quinque, alba, membranacea, glabra, rotundato-ovata, margine integra sed aliquando potius undulata (tunc petala irregulariter vel obscure panduriformia sunt), 8-10 mm. longa, 5-6 mm. lata. Stamina plus minusve quadraginta-duo, in pilorum alborum barba densa basi interposita. Staminum filamenta 3 mm. longa. Antherae flavae, 3 mm. longae. Ovarium subglobosum, sublobulatum vel profunde striatum, glabrum, 2.5 mm. in diametro. Styli quinque, minimi, 0.8-1 mm. longi. Fructus maturus adhuc ignotus, edulis, probabiliter niger et cum sepalis siccis persistentibus. Arbor ab regionis agrestibus "moquillo" nominatur.

Saurauia putumayonis R. E. Schultes et García-Barriga in Caldasia 6 (1943) 42, t. 1 in pag. 43.

COLOMBIA: Departamento del Huila, Río Villalobos: region of the confluence of Ríos Villalobos and Cauchos, alt. 1400 m., "Small, slender forest tree with abundant small white flowers, very fragrant, dropping easily and in abundance. 15 ft. tall. Fruit edible. "Moquillo". January, 1943, *R. E. Schultes et M. Villarreal 5199* (Econ. Herb. Oakes Ames; Herb. Nac. Colomb.).

Schultes et Villarreal 5199 is the second collection of the recently described *Saurauia putumayonis*. It extends the known distribution of this species considerably northeastward in the same general mountain chain. The collection cited above is an excellent match for the type, the only point of difference being in the number of stamens. Whereas in the type collection it was predominantly twenty-two, in *Schultes et Villarreal 5199* the number varies between sixteen and twenty-two: the average is eighteen. Other floral, as well as vegetative characters, are exceedingly constant in this species, judging from a comparison of the two collections at present available.